

**SERVICE  
MANUAL**

**AV251**



**marantz®**

**model AV251**

*Audio/Video Controller*

## MARANTZ DESIGN AND SERVICE

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EUROPEAN PARTS DEPARTMENT  
2, Avenue Léopold III  
B-7120 PERONNES-lez-BINCHE  
BELGIUM  
TWX: 57589 SEPLT B

MARANTZ NATIONAL PARTS DEPARTMENT  
20525 Nordhoff Street  
Chatsworth, California 91311  
Phone: 1-800-423-5108  
Phone: 1-213-998-9333

The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature: any order form or telex must be signed otherwise such part order will be considered as null and void.

### PARTS ORDERING:

Parts may be ordered from the following addresses:

#### EUROPE

MARANTZ FRANCE  
4 Rue Bernard Palissy  
92600 Asnières  
France  
Telex: 611651

MARANTZ GERMANY G.M.B.H.  
Max-Planck-Straße 22  
6072 Dreieich 1  
Germany  
Telex: 4185316

MARANTZ SVENSKA A.B.  
Aldermansvägen 19-21  
Box 1240  
171 24 Solna  
Sweden  
Telex: 13449

MARANTZ S.A.  
326 Avenue Louise Bte 32  
1050 Bruxelles  
Belgium  
Telex: 26602

AL ALAMIAH ELECTRONICS  
Ussama Building  
Fahd Saleem Street  
P.O. Box 23781  
Safat-Kuwait

MARANTZ DENMARK  
Bregnerødvej 132b  
3460 Birkerød  
Denmark  
Telex: 39137

MARANTZ AUSTRIA Ge.M.B.H.  
25 Franz Lisztgasse  
2380 Perchtoldsdorf  
Austria  
Telex: 113583

MARANTZ S.A.  
European Parts Department  
2, Avenue Léopold III  
B-7120 Péronnes-lez-Binche  
Belgium  
Telex: 57589

MARANTZ AUDIO U.K. LTD.  
Unit 15/16  
Saxon Way Industrial Estate  
Moor Lane  
Harmondsworth UB7 0LW  
Great Britain  
Telex: 935196

AL ALAMIAH ELECTRONICS  
P.O. Box 5954  
University Street  
Riyadh 11432  
Saudi Arabia

MARANTZ BELGIUM  
45 Rue Auguste Van Zande  
1080 Brussels  
Belgium

MARANTZ ITALIANA S.p.A.  
Via Montenapoleone 10  
20121 Milano  
Italia

#### AUSTRALIA

MARANTZ NEDERLAND B.V.  
Wagenmakersweg 3  
3449 HV Woerden  
Netherlands

MARANTZ AUSTRALIA PTY., LTD.  
19 Chard Road  
Brookvale, NSW 2100  
Australia  
Telex: 24121

#### U.S.A.

MARANTZ COMPANY, INC.  
National Service Dept.  
P.O. Box 577  
Chatsworth, CA 91311  
U.S.A.  
Telex: 4720284

#### JAPAN

MARANTZ JAPAN, INC.  
35-1, 7-chome, Sagami-cho  
Sagamihara-shi, Kanagawa  
Japan  
Telex: 22878

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please, contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at abovementioned address.

### NOTE—FOR U.S.A. ONLY

Parts for your MARANTZ stereo are generally available within 72 hours throughout the nation via a toll-free line to our National Parts Depot in California. The sales professionals who take your call immediately refer to their own desk top computer terminal and can quickly determine the availability and price information you require. If, for some reason, your order should exceed our available stock, we usually can instantly provide an alternate replacement part or current delivery information. When the order is placed and confirmed, the computer simultaneously generates "hard copy" orders at the distribution center. As hard copies come directly from the computer to the national parts depot, your requested stock is assembled and prepared for shipment and placed on the first available carrier for delivery to you.

Phone orders will eliminate mail delays, and we encourage the use of this method. If you order by mail, use MARANTZ parts order forms which are available from MARANTZ NATIONAL PARTS DEPARTMENT.

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## MODEL AV251 AUDIO/VIDEO CONTROLLER



### INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for the Marantz Model AV251 Audio/Video Controller.

Servicing information and voltage data included in this manual are intended for use by knowledgeable and experienced personnel only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of circuitry operation.

The parts list furnishes complete ordering information. Most replacement parts should be ordered from the Marantz Company. However, a simple description is included for parts which can be obtained locally.

### 1. SHOCK, FIRE HAZARD SERVICE TEST:

**CAUTION:** After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before return to user/customer.

### 2. P.W. BOARDS

As can be seen from the circuit diagram the chassis of Model AV251 consists of the following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. Main . . . . . mounted on P.W. Board PK01
2. VCR-2 IN/OUT . . . . . mounted on P.W. Board PV01
3. VCR-2 Sub . . . . . mounted on P.W. Board PV02
4. Function Indicator . . . . . mounted on P.W. Board PY01
5. Spatial Enhancer . . . . . mounted on P.W. Board PY02

### 3. LM1894 DYNAMIC NOISE REDUCTION SYSTEM DNR™ (Q901)

#### General Description

The LM1894 is a stereo noise reduction circuit for use with audio playback systems. The DNR™ system is non-complementary, meaning it does not require encoded source material. The system is compatible with virtually all prerecorded tapes and FM broadcasts. Psychoacoustic masking, and an adaptive bandwidth scheme allow the DNR™ to achieve 10 dB of noise reduction. DNR™ can save circuit board space and cost because of the few additional components required.

#### Features

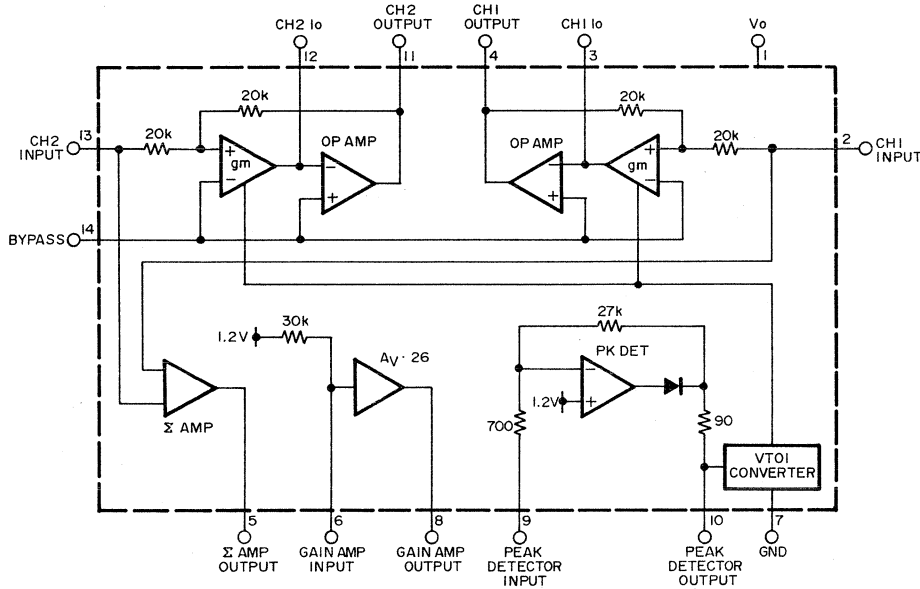
- Non-complementary noise reduction, "single ended".
- Low cost external components, no critical matching.
- Compatible with all prerecorded tapes and FM.
- 10 dB effective tapenose reduction CCIR/ARM weighted.
- Wide supply range, 6 V to 18 V.
- 1 Vrms input overload.
- No license requirements.

# Electrical Characteristics

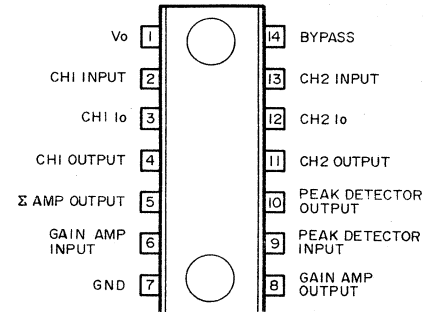
$V_S=8V$ ,  $T_A=25^{\circ}C$ ,  $V_{IN}=300\text{ mV}$  at 1 kHz.

| Parameter                      | Conditions  | Min  | Typ    | Max. | Units |
|--------------------------------|---|------|--------|------|-------|
| Operating Supply Range         | VS=8 V  | 6    | 8      | 18   | V     |
| Supply Current                 |   |      | 17     | 25   | mA    |
| MAIN SIGNAL PATH               |   |      |        |      |       |
| Voltage Gain                   | DC Ground Pin 9   | −0.9 | −1     | −1.1 | V/V   |
| DC Output Voltage              |   | 3.7  | 4.0    | 4.3  | V     |
| Channel Balance                | DC Ground Pin 9   | −1.0 |        | 1.0  | dB    |
| Minimum Bandwidth              | AC Ground Pin 9 with 0.1μF Capacitor  | 675  | 965    | 1400 | Hz    |
| Maximum Bandwidth              | DC Ground Pin 9   | 27   | 34     | 46   | kHz   |
| Effective Noise Reduction      | CCIR/ARM Weighted   |      | −10    | −14  | dB    |
| Total Harmonic Distortion      | DC Ground Pin 9   |      | 0.05   | 0.1  | %     |
| Input Headroom                 | Maximum VIN for 3% THD  |      | 1.0    |      | Vrms  |
|                                | AC Ground Pin 9   |      |        |      |       |
| Output Headroom                | Maximum VOUT for 3% THD   |      | VS−1.5 |      | VP-P  |
|                                | DC Ground Pin 9   |      |        |      |       |
| Signal to Noise                | BW=20 Hz — 20 kHz, re 300 mV  |      |        |      |       |
|                                | AC Ground Pin 9   |      | 79     |      | dB    |
|                                | DC Ground Pin 9   |      | 77     |      | dB    |
|                                | CCIR/ARM Weighted re 300 mV   |      |        |      |       |
|                                | AC Ground Pin 9   | 82   | 88     |      | dB    |
|                                | DC Ground Pin 9   | 70   | 76     |      | dB    |
|                                | CCIR Peak, re 300 mV  |      |        |      |       |
|                                | AC Ground Pin 9   |      | 77     |      | dB    |
|                                | DC Ground Pin 9   |      | 64     |      | dB    |
| Input Impedance                | Pin 2 and Pin 13  | 14   | 20     | 26   | kΩ    |
| Channel Separation             | DC Ground Pin 9   | −50  | −70    |      | dB    |
| Power Supply Rejection         | C14=100μF, VRIPPLE=500 mVrms, f=1 kHz   | −40  | −56    |      | dB    |
| Output DC Shift                | Reference DVM to Pin 14 and Measure Output DC Shift from Minimum to Maximum Bandwidth |      | 4.0    | 20   | mV    |
| CONTROL SIGNAL PATH            |   |      |        |      |       |
| Summing Amplifier Voltage Gain | Both Channels Driven  | 0.9  | 1      | 1.1  | V/V   |
| Gain Amplifier Input Impedance | Pin 6   | 24   | 30     | 39   | kΩ    |
| Voltage Gain                   | Pin 6 to Pin 8  | 21.5 | 24     | 26.5 | V/V   |
| Peak Detector Input Impedance  | Pin 9   | 560  | 700    | 840  | Ω     |
| Voltage Gain                   | Pin 9 to Pin 10   | 30   | 33     | 36   | V/V   |
| Attack Time                    | Measured to 90% of Final Value with 10 kHz Tone Burst                                 | 300  | 500    | 700  | μs    |
| Decay Time                     | Measured to 90% of Final Value with 10 kHz Tone Burst                                 | 45   | 60     | 75   | ms    |
| DC Voltage Range               | Minimum Bandwidth to Maximum Bandwidth  | 1.1  |        | 3.8  | V     |

## Block Diagram



## Physical Dimensions



## 4. VOLTAGE CONVERSION

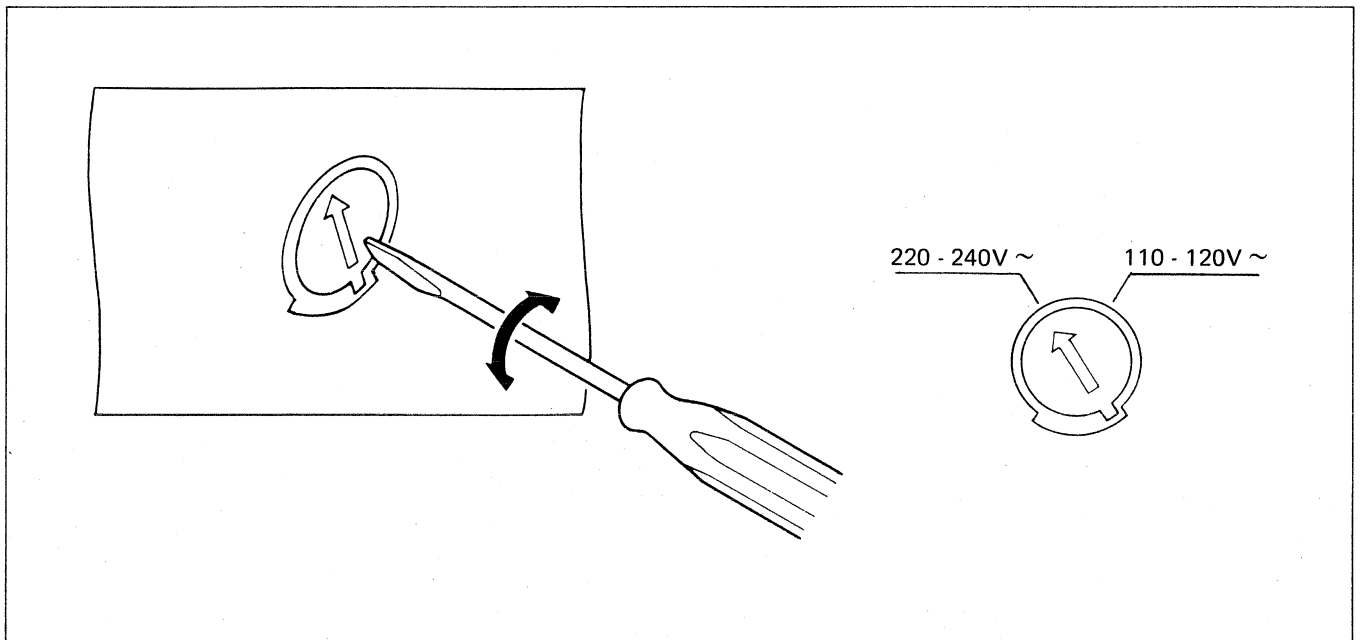
### • EUROPEAN MODEL ONLY

To convert the unit to a different power source voltage, change the position as illustrated in the drawing below.

### CAUTION

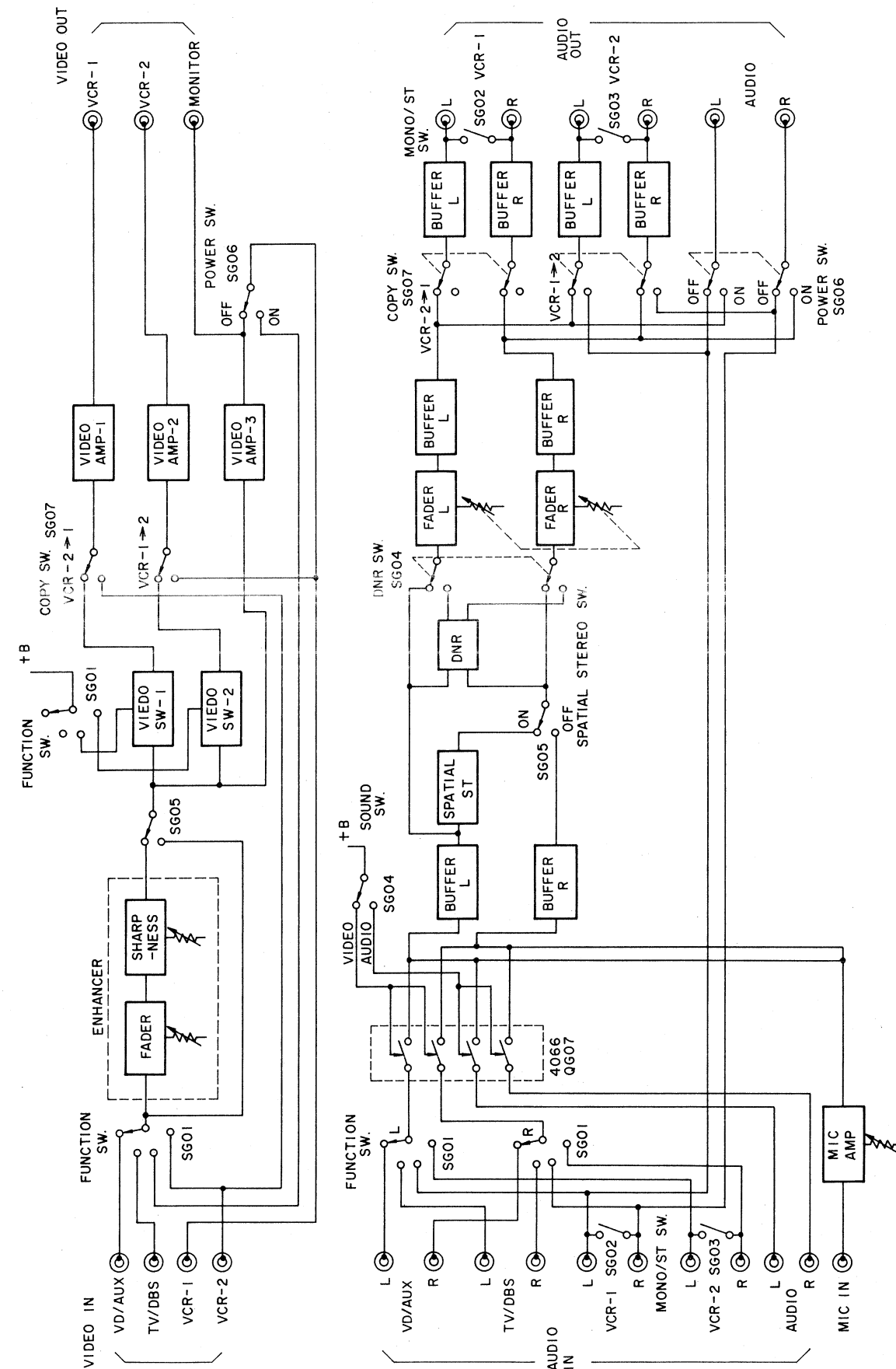
DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

### Voltage Conversion Chart



**Note on safety:** Symbol  $\Delta$  Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol  $\Delta$ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

5. BLOCK DIAGRAM



6. TECHNICAL SPECIFICATIONS

VIDEO SECTION (VCR-1, VCR-2, TV-DBS, VIDEO-AUX)

|                                      |                          |
|--------------------------------------|--------------------------|
| Video Input Sensitivity/Impedance    | 1 Vpp/75 ohms            |
| Video Output Level/Impedance         | 1 Vpp/75 ohms            |
| Signal-to-Noise Ratio (Video Signal) | 70 dB                    |
| Cross Talk (Video Signal)            | 45 dB (3.58 MHz)         |
| Frequency Response (Video Signal)    | ±3 dB (6.5 Hz ~ 8 MHz)   |
| Audio Input Sensitivity/Impedance    | 150 mV/25 kohms          |
| Audio Output Level/Impedance         | 150 mV/250 ohms          |
| Signal-to-Noise Ratio (Audio Signal) | 85 dB (150 mV. 1HF-Awt)  |
| D. N. R effect (Audio Signal)        | 10 dB                    |
| Separation (Audio Signal, L/R)       | 50 dB (1 kHz)            |
| Cross Talk (Audio Signal)            | 60 dB (1 kHz)            |
| Frequency Response (Audio Signal)    | ±1.5 dB (20 Hz ~ 80 kHz) |

AUDIO SECTION (AUDIO, MIC)

|  |                          |
|--|--------------------------|
| Audio Input Sensitivity/Impedance            | 150 mV/25 kohms          |
| Mic Input Sensitivity/Impedance              | 2.2 mV/15 kohms          |
| Audio Output Level/Impedance                 | 150 mV/750 ohms          |
| Signal-to-Noise Ratio (150 mV. Audio Signal) | 85 dB                    |
| Separation (Audio Signal, L/R)               | 50 dB (1 kHz)            |
| Cross Talk (Audio → Audio)                   | 60 dB (1 kHz)            |
| (Video → Audio)                              | 70 dB (50 Hz. 15 kHz)    |
| (Audio → Video)                              | 65 dB (1 kHz)            |
| Frequency Response (Audio Signal)            | ±1.5 dB (20 Hz ~ 80 kHz) |
| Maximum Input Level (Audio Signal)           | 2 Vrms                   |
| Maximum Output Level (Audio Signal)          | 2 Vrms                   |

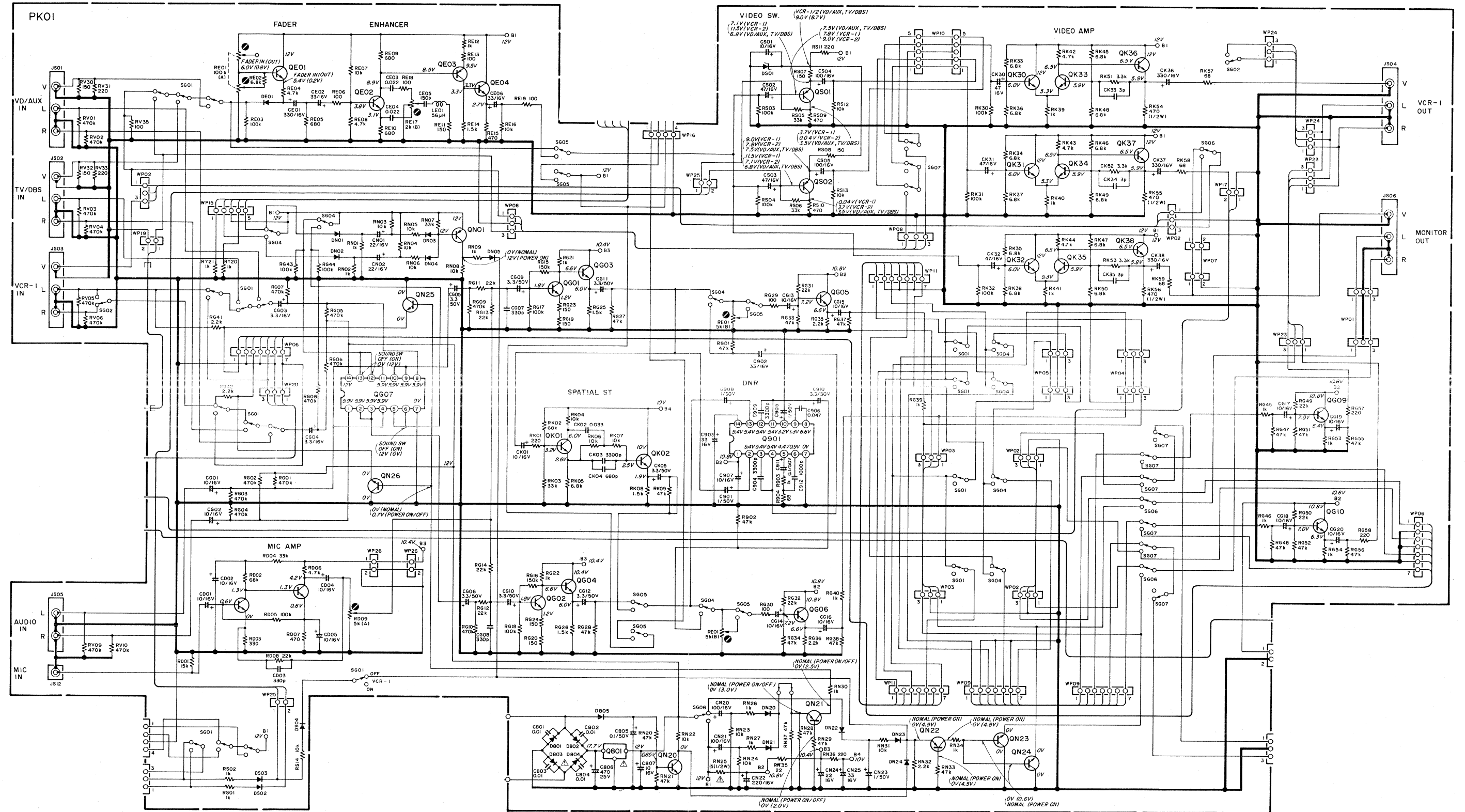
GENERAL

|                        |                                |
|------------------------|--------------------------------|
| Power Requirement      | AC 110~120V/220~240 V 50/60 Hz |
| Power Consumption      | 8 W                            |
| Dimensions (W x H x D) | 420 x 37 x 192 mm              |
| Weight                 | 1.8 kg                         |

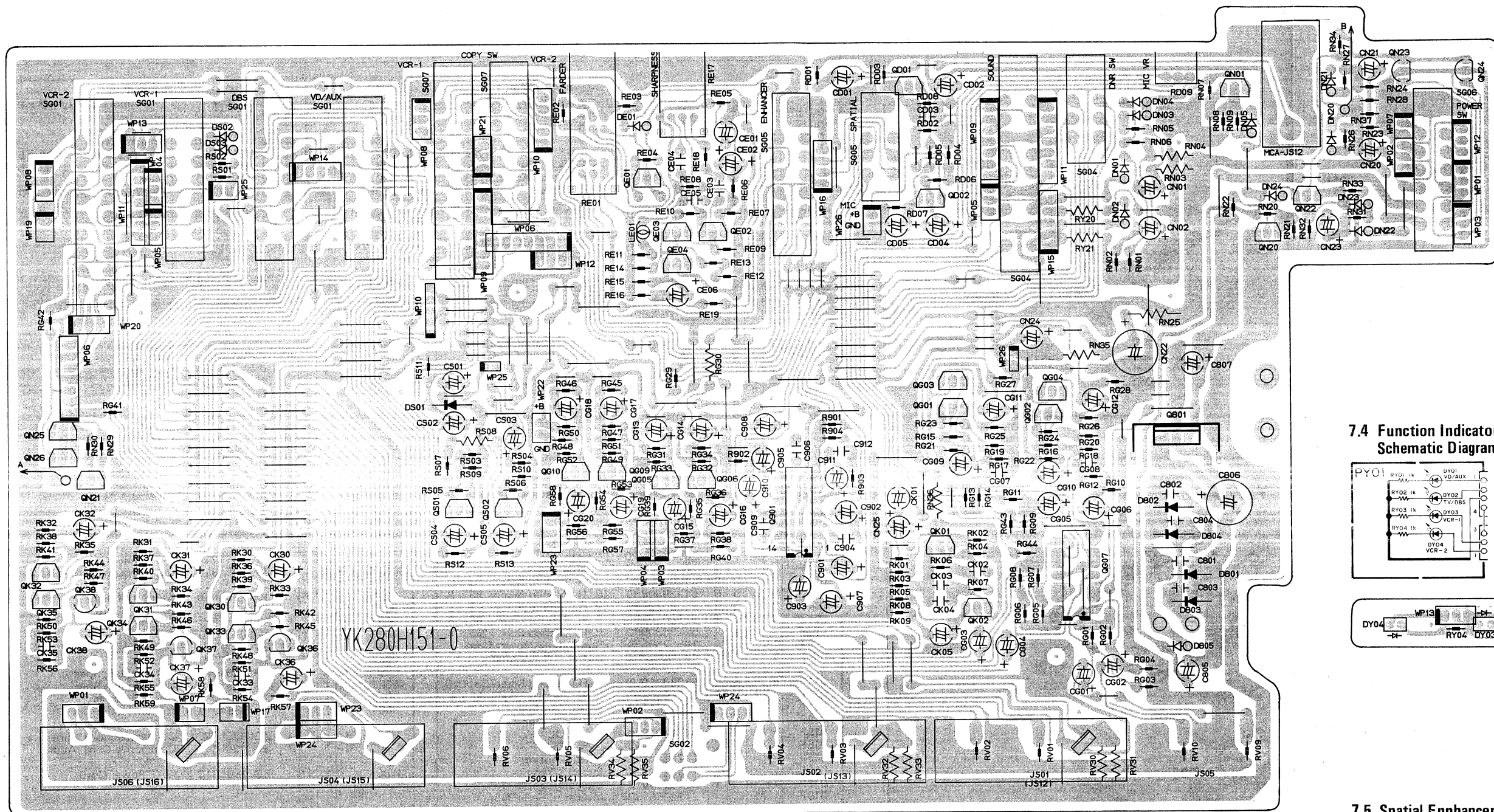
Specifications and appearance are subject to change for modification without notice.

## 7. SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS

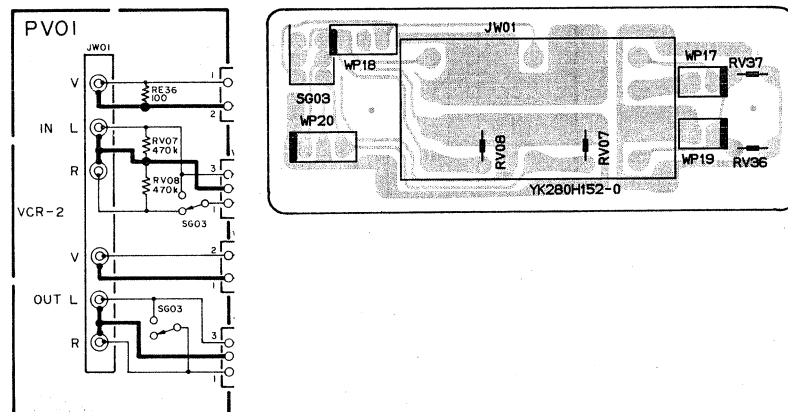
### 7.1 Main Assembly (PK01) Schematic Diagram and Component Locations



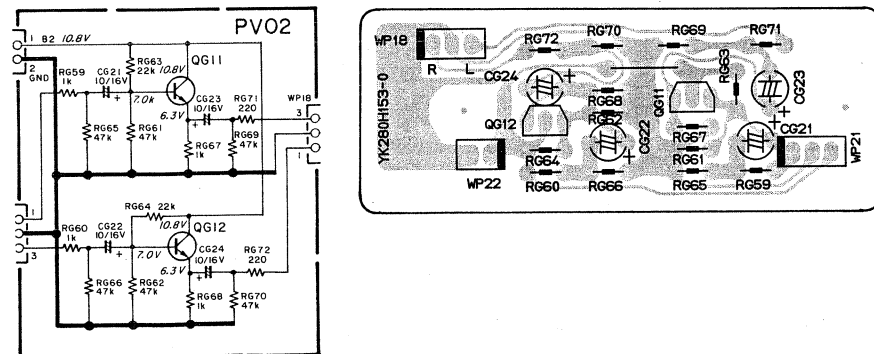




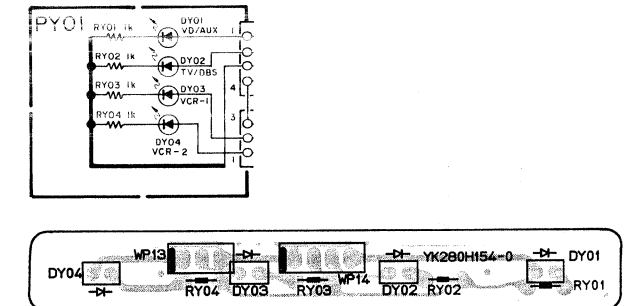
7.2 VCR-2 IN/OUT Assembly (PV01) Schematic Diagram and Component Locations



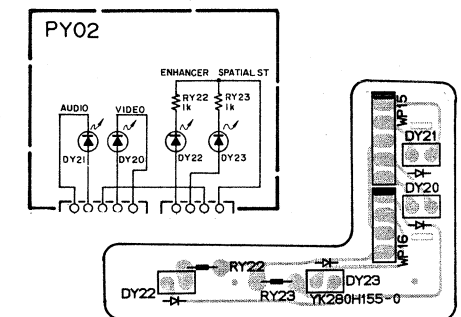
7.3 VCR-2 Sub Assembly (PV02) Schematic Diagram and Component Locations



7.4 Function Indicator Assembly (PY01) Schematic Diagram and Component Locations

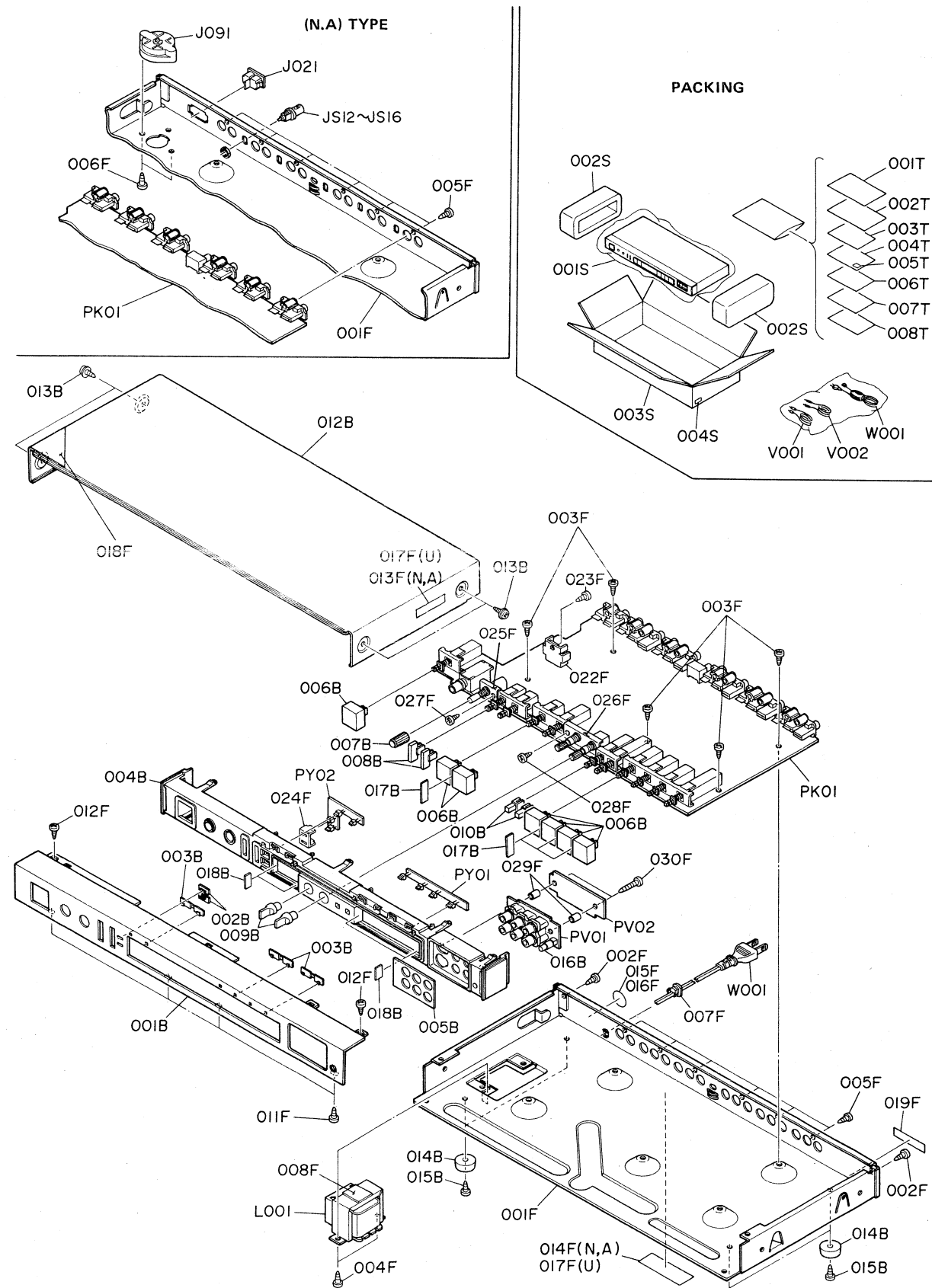


7.5 Spatial Enhancer Assembly (PY02) Schematic Diagram and Component Locations



8. EXPLODED VIEW AND PARTS LIST

• [P01-99] Front panel/Chassis and Packing Materials



• (U): for U.S.A.  
• (N): for Europe  
• (A): for Australia  
• (F): for Japan

| REF. DESIG. | Q'TY |   |   |   | PART NO.   | DESCRIPTION                |
|-------------|------|---|---|---|------------|----------------------------|
|             | U    | N | A | F |            |                            |
| A           | 1    | 1 | 1 | 1 | 280H248400 | (BLACK MODEL)              |
| 001B        | 1    | 1 | 1 | 1 | 280H248020 | Front Panel Assembly       |
| 002B        | 2    | 2 | 2 | 2 | 249H355010 | Front Panel                |
| 003B        | 2    | 3 | 3 | 3 | 280H355010 | Lens                       |
| A1          | 1    | 1 | 1 | 1 | 280H248410 | (GOLD MODEL)               |
| 001B        | 1    | 1 | 1 | 1 | 280H248010 | Front Panel Assembly       |
| 002B        | 2    | 2 | 2 | 2 | 249H355010 | Front Panel                |
| 003B        | 3    | 3 | 3 | 3 | 280H355010 | Lens                       |
| 004B        | 1    | 1 | 1 | 1 | 280H160020 | Bracket, Front (Black)     |
| 004B        | 1    | 1 | 1 | 1 | 280H160010 | Bracket, Front (Gold)      |
| 005B        | 1    | 1 | 1 | 1 | 280H265030 | Indicator, Front (Black)   |
| 005B        | 1    | 1 | 1 | 1 | 280H265010 | Indicator, Front (Gold)    |
| 006B        | 7    | 7 | 7 | 7 | 158T270110 | Button, Push (Black)       |
| 006B        | 7    | 7 | 7 | 7 | 158T270010 | Button, Push (Gold)        |
| 007B        | 1    | 1 | 1 | 1 | 258H154320 | Knob, Mix Level (Black)    |
| 007B        | 1    | 1 | 1 | 1 | 258H154220 | Knob, Mix Level (Gold)     |
| 008B        | 2    | 2 | 2 | 2 | 280H270030 | Button, Push (Black)       |
| 008B        | 2    | 2 | 2 | 2 | 280H270010 | Button, Push (Gold)        |
| 009B        | 2    | 2 | 2 | 2 | 2988154020 | Knob, VR (Black)           |
| 009B        | 2    | 2 | 2 | 2 | 2988154210 | Knob, VR (Gold)            |
| 010B        | 2    | 2 | 2 | 2 | 030H154120 | Knob, Copy (Black)         |
| 010B        | 2    | 2 | 2 | 2 | 030H154020 | Knob, Copy (Gold)          |
| 012B        | 1    | 1 | 1 | 1 | 431H257110 | Lid, Top Cover (Black)     |
| 012B        | 1    | 1 | 1 | 1 | 431H257010 | Lid, Top Cover (Gold)      |
| 013B        | 4    | 4 | 4 | 4 | 51706009U0 | Special Set Screw          |
| 014B        | 4    | 4 | 4 | 4 | 415H057010 | Leg                        |
| 015B        | 4    | 4 | 4 | 4 | 51280408B0 | B. H. Tapped Screw B4 x 8  |
| 016B        | 1    | 1 | 1 | 1 | 280H270050 | Button, MONO/ST; K         |
| 017B        | 4    | 4 | 4 | 4 | 280H118010 | Spacer                     |
| 018B        | 4    | 4 | 4 | 4 | 280H118020 | Spacer                     |
| 001F        | 1    | 1 | 1 | 1 | 280H105030 | Chassis, Main              |
| 001F        | 1    | 1 | 1 | 1 | 280H105020 | Chassis, Main              |
| 001F        | 1    | 1 | 1 | 1 | 280H105010 | Chassis, Main              |
| 002F        | 2    | 2 | 2 | 2 | 51280308B0 | B. H. Tapped Screw B3 x 8  |
| 003F        | 5    | 5 | 5 | 5 | 51280308B0 | B. H. Tapped Screw B3 x 8  |
| 004F        | 2    | 2 | 2 | 2 | 51280308B0 | B. H. Tapped Screw B3 x 8  |
| 005F        | 6    | 6 | 6 | 6 | 51280308B0 | B. H. Tapped Screw B3 x 8  |
| 006F        | 2    | 2 | 2 | 2 | 51280308B0 | B. H. Tapped Screw B3 x 8  |
| 007F        | 1    | 1 | 1 | 1 | 1455259030 | Bushing, AC Power Cord     |
| 008F        | 1    | 1 | 1 | 1 | 431H056010 | Buffer, Transformer        |
| 011F        | 4    | 4 | 4 | 4 | 51280310U0 | B. H. Tapped Screw B3 x 10 |
| 012F        | 2    | 2 | 2 | 2 | 51280308B0 | B. H. Tapped Screw B3 x 8  |
| 013F        | 1    | 1 | 1 | 1 | 2911861140 | Label, Caution             |
| 014F        | 1    | 1 | 1 | 1 | 2911861110 | Label, Caution             |
| 015F        | 1    | 1 | 1 | 1 | 9511101070 | Label, UL                  |
| 016F        | 1    | 1 | 1 | 1 | 2457861040 | Label, CSA                 |
| 017F        | 2    | 2 | 2 | 2 | 117H861020 | Label, Caution             |
| 018F        | 1    | 1 | 1 | 1 | 105H861010 | Label, 3 Year              |
| 019F        | 1    | 1 | 1 | 1 | 2112265010 | Indicator, Serial No.      |
| 019F        | 1    | 1 | 1 | 1 | 2112265110 | Indicator, Serial No.      |

| REF. DESIG. | Q'TY |   |   |   | PART NO.    | DESCRIPTION                |
|-------------|------|---|---|---|-------------|----------------------------|
|             | U    | N | A | F |             |                            |
| 022F        | 1    | 1 | 1 | 1 | 2963267020  | Heatsink                   |
| 023F        | 1    | 1 | 1 | 1 | 51280308B0  | B. H. Tapped Screw B3 x 8  |
| 024F        | 1    | 1 | 1 | 1 | 280H051010  | Guide, LED                 |
| 025F        | 1    | 1 | 1 | 1 | 280H104020  | Retainer, Mix VR           |
| 026F        | 1    | 1 | 1 | 1 | 280H104030  | Retainer, VR               |
| 027F        | 1    | 1 | 1 | 1 | 51100305A9  | B. H. M. Screw B3 x 5      |
| 028F        | 1    | 1 | 1 | 1 | 51100305A9  | B. H. M. Screw B3 x 5      |
| 029F        | 2    | 2 | 2 | 2 | 216T055010  | Collar                     |
| 030F        | 2    | 2 | 2 | 2 | 51280320B0  | B. H. Tapped Screw B3 x 20 |
| Δ J021      | 1    | 1 | 1 | 1 | YP04000580  | Plug, AC Input             |
| Δ J091      | 1    | 1 | 1 | 1 | BY05060060  | Voltage Selector           |
| Δ L001      | 1    | 1 | 1 | 1 | TS14132250  | Power Transformer          |
| Δ L001      | 1    | 1 | 1 | 1 | TS14132240  | Power Transformer          |
| Δ L001      | 1    | 1 | 1 | 1 | TS14132230  | Power Transformer          |
| Δ W001      | 1    | 1 | 1 | 1 | YC01900100  | A. C. Power Cord           |
| Δ W001      | 1    | 1 | 1 | 1 | YC01900080  | A. C. Power Cord           |
| JS12        | 1    | 1 | 1 | 1 | YP10001980  | Plug, BNC                  |
| JS13        | 1    | 1 | 1 | 1 | YP10001980  | Plug, BNC                  |
| JS14        | 1    | 1 | 1 | 1 | YP10001980  | Plug, BNC                  |
| JS15        | 1    | 1 | 1 | 1 | YP10001980  | Plug, BNC                  |
| JS16        | 1    | 1 | 1 | 1 | YP10001980  | Plug, BNC                  |
| 001S        | 1    | 1 | 1 | 1 | 9014323160  | Packing                    |
| 002S        | 2    | 2 | 2 | 2 | 431H809010  | Polyethylene Bag           |
| 003S        | 1    | 1 | 1 | 1 | 280H801020  | Cushion                    |
| 003S        | 1    | 1 | 1 | 1 | 280H801010  | Packing Case               |
| 003S        | 1    | 1 | 1 | 1 | 280H801010  | Packing Case               |
| 004S        | 2    | 2 | 2 | 2 | 9526019010  | Serial No. Cord            |
| 004S        | 4    | 4 | 4 | 4 | 9526019060  | Serial No. Cord            |
| 004S        | 4    | 4 | 4 | 4 | 9526019030  | Serial No. Cord            |
| 004S        | 4    | 4 | 4 | 4 | 9526019040  | Serial No. Cord            |
| 001T        | 1    | 1 | 1 | 1 | 280H851210  | User Manual                |
| 001T        | 1    | 1 | 1 | 1 | 280H851310  | User Manual                |
| 001T        | 1    | 1 | 1 | 1 | 280H851110  | User Manual                |
| 002T        | 1    | 1 | 1 | 1 | 103H854010  | Warranty Card              |
| 002T        | 1    | 1 | 1 | 1 | 9631000090  | Warranty Card              |
| 002T        | 1    | 1 | 1 | 1 | 96310000130 | Warranty Card              |
| 003T        | 1    | 1 | 1 | 1 | 128T854010  | Warranty Card              |
| 004T        | 1    | 1 | 1 | 1 | 9611000050  | User's Card                |
| 005T        | 1    | 1 | 1 | 1 | 9540000010  | Licence                    |
| 006T        | 1    | 1 | 1 | 1 | 280H851220  | User Manual, Spec          |
| 006T        | 1    | 1 | 1 | 1 | 280H851320  | User Manual, Spec          |
| 007T        | 1    | 1 | 1 | 1 | 280H856010  | Circuit Diagram            |
| 008T        | 1    | 1 | 1 | 1 | 180T854010  | Warranty Card              |
| V001        | 1    | 1 | 1 | 1 | ZD01200120  | Connective Cord, Video     |
| V002        | 1    | 1 | 1 | 1 | ZD01200170  | Connective Cord, Audio     |
| Δ W001      | 1    | 1 | 1 | 1 | ZC01805010  | A. C. Power Cord           |

## 9. ELECTRICAL PARTS LIST

- (U): for U.S.A.
- (N): for Europe
- (A): for Australia
- (F): for Japan

| REF. DESIG. | Q'TY |   |   |   | PART NO.                               | DESCRIPTION   |
|-------------|------|---|---|---|--|---|
|             | U    | N | A | F |  |   |
| PK01        | 1    | 1 | 1 | 1 | YK280H1510<br>ZZ280H1510<br>ZZ280H8510 | <b>PK01-MAIN<br/>CIRCUIT BOARD<br/>(BLACK MODEL)</b><br>P. W. Board, Main<br>P. W. Board, Assembly<br>P. W. Board, Assembly |
| PK01        | 1    | 1 | 1 | 1 | YK280H1510<br>ZZ280H2510<br>ZZ280H7510 | <b>PK01-MAIN<br/>CIRCUIT BOARD<br/>(GOLD MODEL)</b><br>P. W. Board, Main<br>P. W. Board, Assembly<br>P. W. Board, Assembly  |
| CD01        | 1    | 1 | 1 | 1 | FA10601610                             | <b>PK01-CAPACITORS</b><br>Elect 10 $\mu$ F 16V  |
| CD02        | 1    | 1 | 1 | 1 | FA10601610                             | Elect 10 $\mu$ F 16V  |
| CD03        | 1    | 1 | 1 | 1 | DK16331300                             | Ceramic 330pF $\pm 10\%$  |
| CD04        | 1    | 1 | 1 | 1 | EA10601610                             | Elect 10 $\mu$ F 16V  |
| CD05        | 1    | 1 | 1 | 1 | EA10601610                             | Elect 10 $\mu$ F 16V  |
| CE01        | 1    | 1 | 1 | 1 | EA33701610                             | Elect 330 $\mu$ F 16V   |
| CE02        | 1    | 1 | 1 | 1 | EA33601610                             | Elect 33 $\mu$ F 16V  |
| CE03        | 1    | 1 | 1 | 1 | DF16222310                             | Film 0.022 $\mu$ F $\pm 10\%$   |
| CE04        | 1    | 1 | 1 | 1 | DF16222310                             | Film 0.022 $\mu$ F $\pm 10\%$   |
| CE05        | 1    | 1 | 1 | 1 | DD15151300                             | Ceramic 150pF $\pm 10\%$  |
| CE06        | 1    | 1 | 1 | 1 | EA33601610                             | Elect 33 $\mu$ F 16V  |
| CG01        | 1    | 1 | 1 | 1 | EA10601610                             | Elect 10 $\mu$ F 16V  |
| CG02        | 1    | 1 | 1 | 1 | EA10601610                             | Elect 10 $\mu$ F 16V  |
| CG03        | 1    | 1 | 1 | 1 | EA33505010                             | Elect 3.3 $\mu$ F 50V   |
| CG04        | 1    | 1 | 1 | 1 | EA33505010                             | Elect 3.3 $\mu$ F 50V   |
| CG05        | 1    | 1 | 1 | 1 | EA33505010                             | Elect 3.3 $\mu$ F 50V   |
| CG06        | 1    | 1 | 1 | 1 | EA33505010                             | Elect 3.3 $\mu$ F 50V   |
| CG07        | 1    | 1 | 1 | 1 | DK16331300                             | Ceramic 330pF $\pm 10\%$  |
| CG08        | 1    | 1 | 1 | 1 | DK16331300                             | Ceramic 330pF $\pm 10\%$  |
| CG09        | 1    | 1 | 1 | 1 | EA33505010                             | Elect 3.3 $\mu$ F 50V   |
| CG10        | 1    | 1 | 1 | 1 | EA33505010                             | Elect 3.3 $\mu$ F 50V   |
| CG11        | 1    | 1 | 1 | 1 | EA33505010                             | Elect 3.3 $\mu$ F 50V   |
| CG12        | 1    | 1 | 1 | 1 | EA33505010                             | Elect 3.3 $\mu$ F 50V   |
| CG13        | 1    | 1 | 1 | 1 | EA10601610                             | Elect 10 $\mu$ F 16V  |
| CG20        | 8    | 8 | 8 | 8 | EA10601610                             | Elect 10 $\mu$ F 16V  |
| CK01        | 1    | 1 | 1 | 1 | EA10601610                             | Elect 10 $\mu$ F 16V  |
| CK02        | 1    | 1 | 1 | 1 | DF16333350                             | Film 0.033 $\mu$ F $\pm 10\%$   |
| CK03        | 1    | 1 | 1 | 1 | DF16332350                             | Film 3300pF $\pm 10\%$  |
| CK04        | 1    | 1 | 1 | 1 | DF15681350                             | Film 680pF $\pm 5\%$  |
| CK05        | 1    | 1 | 1 | 1 | EA33505010                             | Elect 3.3 $\mu$ F 50V   |
| CK30        | 1    | 1 | 1 | 1 | EA47601610                             | Elect 47 $\mu$ F 16V  |
| CK31        | 1    | 1 | 1 | 1 | EA47601610                             | Elect 47 $\mu$ F 16V  |
| CK32        | 1    | 1 | 1 | 1 | EA47601610                             | Elect 47 $\mu$ F 16V  |
| CK33        | 1    | 1 | 1 | 1 | DD10030300                             | Ceramic 3pF $\pm 0.25$ pF   |
| CK34        | 1    | 1 | 1 | 1 | DD10030300                             | Ceramic 3pF $\pm 0.25$ pF   |
| CK35        | 1    | 1 | 1 | 1 | DD10030300                             | Ceramic 3pF $\pm 0.25$ pF   |
| CK36        | 1    | 1 | 1 | 1 | EA33701610                             | Elect 330 $\mu$ F 16V   |
| CK37        | 1    | 1 | 1 | 1 | EA33701610                             | Elect 330 $\mu$ F 16V   |
| CK38        | 1    | 1 | 1 | 1 | EA33701610                             | Elect 330 $\mu$ F 16V   |
| CN01        | 1    | 1 | 1 | 1 | EA22601610                             | Elect 22 $\mu$ F 16V  |
| CN02        | 1    | 1 | 1 | 1 | EA22601610                             | Elect 22 $\mu$ F 16V  |
| CN20        | 1    | 1 | 1 | 1 | EA10701610                             | Elect 100 $\mu$ F 16V   |
| CN21        | 1    | 1 | 1 | 1 | EA10701610                             | Elect 100 $\mu$ F 16V   |
| CN22        | 1    | 1 | 1 | 1 | EA22701610                             | Elect 220 $\mu$ F 16V   |
| CN23        | 1    | 1 | 1 | 1 | EA10505010                             | Elect 1 $\mu$ F 50V   |
| CN24        | 1    | 1 | 1 | 1 | EA33601610                             | Elect 33 $\mu$ F 16V  |
| CN25        | 1    | 1 | 1 | 1 | EA33601610                             | Elect 33 $\mu$ F 16V  |

| REF. DESIG. | Q'TY |    |    |    | PART NO.   | DESCRIPTION                   |
|-------------|------|----|----|----|------------|-------------------------------|
|             | U    | N  | A  | F  |            |                               |
| CS01        | 1    | 1  | 1  | 1  | EA10601610 | Elect 10 $\mu$ F 16V          |
| CS02        | 1    | 1  | 1  | 1  | EA47601610 | Elect 47 $\mu$ F 16V          |
| CS03        | 1    | 1  | 1  | 1  | EA47601610 | Elect 47 $\mu$ F 16V          |
| CS04        | 1    | 1  | 1  | 1  | EA10701610 | Elect 100 $\mu$ F 16V         |
| CS05        | 1    | 1  | 1  | 1  | EA10701610 | Elect 100 $\mu$ F 16V         |
| C801        | 1    | 1  | 1  | 1  | DK18103310 | Ceramic 0.01 $\mu$ F          |
| C802        | 1    | 1  | 1  | 1  | DK18103310 | Ceramic 0.01 $\mu$ F          |
| C803        | 1    | 1  | 1  | 1  | DK18103310 | Ceramic 0.01 $\mu$ F          |
| C804        | 1    | 1  | 1  | 1  | DK18103310 | Ceramic 0.01 $\mu$ F          |
| C805        | 1    | 1  | 1  | 1  | EA10405010 | Elect 0.1 $\mu$ F 50V         |
| C806        | 1    | 1  | 1  | 1  | EA47702510 | Elect 470 $\mu$ F 25V         |
| C807        | 1    | 1  | 1  | 1  | EA10601610 | Elect 10 $\mu$ F 16V          |
| C901        | 1    | 1  | 1  | 1  | EA10505010 | Elect 1 $\mu$ F 50V           |
| C902        | 1    | 1  | 1  | 1  | EA33505010 | Elect 3.3 $\mu$ F 50V         |
| C903        | 1    | 1  | 1  | 1  | EA33601610 | Elect 33 $\mu$ F 16V          |
| C904        | 1    | 1  | 1  | 1  | DF16332310 | Film 3300pF $\pm 10\%$        |
| C905        | 1    | 1  | 1  | 1  | EA10505010 | Elect 1 $\mu$ F 50V           |
| C906        | 1    | 1  | 1  | 1  | DF16473310 | Film 0.047 $\mu$ F $\pm 10\%$ |
| C907        | 1    | 1  | 1  | 1  | EA10601610 | Elect 10 $\mu$ F 16V          |
| C908        | 1    | 1  | 1  | 1  | EA10505010 | Elect 1 $\mu$ F 50V           |
| C909        | 1    | 1  | 1  | 1  | DF16332310 | Film 3300pF $\pm 10\%$        |
| C910        | 1    | 1  | 1  | 1  | EA33505010 | Elect 3.3 $\mu$ F 50V         |
| C911        | 1    | 1  | 1  | 1  | EA10405010 | Elect 0.1 $\mu$ F 50V         |
| C912        | 1    | 1  | 1  | 1  | DF16102310 | Film 1000pF $\pm 10\%$        |
| RD01        | 1    | 1  | 1  | 1  | GD05153160 | 15k $\Omega$                  |
| RD02        | 1    | 1  | 1  | 1  | GD05683160 | 68k $\Omega$                  |
| RD03        | 1    | 1  | 1  | 1  | GD05331160 | 330 $\Omega$                  |
| RD04        | 1    | 1  | 1  | 1  | GD05333160 | 33k $\Omega$                  |
| RD05        | 1    | 1  | 1  | 1  | GD05104160 | 100k $\Omega$                 |
| RD06        | 1    | 1  | 1  | 1  | GD05472160 | 4.7k $\Omega$                 |
| RD07        | 1    | 1  | 1  | 1  | GD05471160 | 470 $\Omega$                  |
| RD08        | 1    | 1  | 1  | 1  | GD05223160 | 22k $\Omega$                  |
| RD09        | 1    | 1  | 1  | 1  | RK05020310 | 5k $\Omega$ (A), Variable     |
| RE01        | 1    | 1  | 1  | 1  | RG01040080 | 100k $\Omega$ (A), Variable   |
| RE02        | 1    | 1  | 1  | 1  | GD05682160 | 6.8k $\Omega$                 |
| RE03        | 1    | 1  | 1  | 1  | GD05104160 | 100k $\Omega$                 |
| RE04        | 1    | 1  | 1  | 1  | GD05472160 | 4.7k $\Omega$                 |
| RE05        | 1    | 1  | 1  | 1  | GD05681160 | 680 $\Omega$                  |
| RE06        | 1    | 1  | 1  | 1  | GD05101160 | 100 $\Omega$                  |
| RE07        | 1    | 1  | 1  | 1  | GD05103160 | 10k $\Omega$                  |
| RE08        | 1    | 1  | 1  | 1  | GD05472160 | 4.7k $\Omega$                 |
| RE09        | 1    | 1  | 1  | 1  | GD05681160 | 680 $\Omega$                  |
| RE10        | 1    | 1  | 1  | 1  | GD05681160 | 680 $\Omega$                  |
| RE11        | 1    | 1  | 1  | 1  | GD05151160 | 150 $\Omega$                  |
| RE12        | 1    | 1  | 1  | 1  | GD05102160 | 1k $\Omega$                   |
| RE13        | 1    | 1  | 1  | 1  | GD05101160 | 100 $\Omega$                  |
| RE14        | 1    | 1  | 1  | 1  | GD05152160 | 1.5k $\Omega$                 |
| RE15        | 1    | 1  | 1  | 1  | GD05471160 | 470 $\Omega$                  |
| RE16        | 1    | 1  | 1  | 1  | GD05103160 | 10k $\Omega$                  |
| RE17        | 1    | 1  | 1  | 1  | RK02020140 | 2k $\Omega$ (B), Variable     |
| RE18        | 1    | 1  | 1  | 1  | GD05101160 | 100 $\Omega$                  |
| RE19        | 1    | 1  | 1  | 1  | GD05101160 | 100 $\Omega$                  |
| RG01        | 10   | 10 | 10 | 10 | GD05474160 | 470k $\Omega$                 |
| RG10        | 10   | 10 | 10 | 10 | GD05474160 | 470k $\Omega$                 |

- (U): for U.S.A.
- (N): for Europe
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- (F): for Japan

| REF.<br>DESIG. | Q'TY |   |   |   | PART NO.   | DESCRIPTION |
|----------------|------|---|---|---|------------|-------------|
|                | U    | N | A | F |            |             |
| RG11           | 1    | 1 | 1 | 1 | GD05223160 | 22kΩ        |
| RG12           | 1    | 1 | 1 | 1 | GD05223160 | 22kΩ        |
| RG13           | 1    | 1 | 1 | 1 | GD05223160 | 22kΩ        |
| RG14           | 1    | 1 | 1 | 1 | GD05223160 | 22kΩ        |
| RG15           | 1    | 1 | 1 | 1 | GD05154160 | 150kΩ       |
| RG16           | 1    | 1 | 1 | 1 | GD05154160 | 150kΩ       |
| RG17           | 1    | 1 | 1 | 1 | GD05104160 | 100kΩ       |
| RG18           | 1    | 1 | 1 | 1 | GD05104160 | 100kΩ       |
| RG19           | 1    | 1 | 1 | 1 | GD05151160 | 150Ω        |
| RG20           | 1    | 1 | 1 | 1 | GD05151160 | 150Ω        |
| RG21           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ         |
| RG22           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ         |
| RG23           | 1    | 1 | 1 | 1 | GD05151160 | 150Ω        |
| RG24           | 1    | 1 | 1 | 1 | GD05151160 | 150Ω        |
| RG25           | 1    | 1 | 1 | 1 | GD05152160 | 1.5kΩ       |
| RG26           | 1    | 1 | 1 | 1 | GD05152160 | 1.5kΩ       |
| RG27           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RG28           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RG29           | 1    | 1 | 1 | 1 | GD05101160 | 100Ω        |
| RG30           | 1    | 1 | 1 | 1 | GD05101160 | 100Ω        |
| RG31           | 1    | 1 | 1 | 1 | GD05223160 | 22kΩ        |
| RG32           | 1    | 1 | 1 | 1 | GD05223160 | 22kΩ        |
| RG33           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RG34           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RG35           | 1    | 1 | 1 | 1 | GD05222160 | 2.2kΩ       |
| RG36           | 1    | 1 | 1 | 1 | GD05222160 | 2.2kΩ       |
| RG37           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RG38           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RG39           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ         |
| RG40           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ         |
| RG41           | 1    | 1 | 1 | 1 | GD05222160 | 2.2kΩ       |
| RG42           | 1    | 1 | 1 | 1 | GD05222160 | 2.2kΩ       |
| RG43           | 1    | 1 | 1 | 1 | GD05104160 | 100kΩ       |
| RG44           | 1    | 1 | 1 | 1 | GD05104160 | 100kΩ       |
| RG45           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ         |
| RG46           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ         |
| RG47           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RG48           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RG49           | 1    | 1 | 1 | 1 | GD05223160 | 22kΩ        |
| RG50           | 1    | 1 | 1 | 1 | GD05223160 | 22kΩ        |
| RG51           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RG52           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RG53           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ         |
| RG54           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ         |
| RG55           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RG56           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RG57           | 1    | 1 | 1 | 1 | GD05221160 | 220Ω        |
| RG58           | 1    | 1 | 1 | 1 | GD05221160 | 220Ω        |
| RK01           | 1    | 1 | 1 | 1 | GD05221160 | 220Ω        |
| RK02           | 1    | 1 | 1 | 1 | GD05683160 | 68kΩ        |
| RK03           | 1    | 1 | 1 | 1 | GD05333160 | 33kΩ        |
| RK04           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ        |
| RK05           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ       |
| RK06           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ        |
| RK07           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ        |
| RK08           | 1    | 1 | 1 | 1 | GD05152160 | 1.5kΩ       |
| RK09           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ        |
| RK30           | 1    | 1 | 1 | 1 | GD05104160 | 100kΩ       |
| RK31           | 1    | 1 | 1 | 1 | GD05104160 | 100kΩ       |
| RK32           | 1    | 1 | 1 | 1 | GD05104160 | 100kΩ       |
| RK33           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ       |
| RK34           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ       |
| RK35           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ       |
| RK36           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ       |
| RK37           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ       |
| RK38           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ       |
| RK39           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ         |
| RK40           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ         |

| REF.<br>DESIG. | Q'TY |   |   |   | PART NO.   | DESCRIPTION     |
|----------------|------|---|---|---|------------|-----------------|
|                | U    | N | A | F |            |                 |
| RK41           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ             |
| RK42           | 1    | 1 | 1 | 1 | GD05472160 | 4.7kΩ           |
| RK43           | 1    | 1 | 1 | 1 | GD05472160 | 4.7kΩ           |
| RK44           | 1    | 1 | 1 | 1 | GD05472160 | 4.7kΩ           |
| RK45           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ           |
| RK46           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ           |
| RK47           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ           |
| RK48           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ           |
| RK49           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ           |
| RK50           | 1    | 1 | 1 | 1 | GD05682160 | 6.8kΩ           |
| RK51           | 1    | 1 | 1 | 1 | GD05332160 | 3.3kΩ           |
| RK52           | 1    | 1 | 1 | 1 | GD05332160 | 3.3kΩ           |
| RK53           | 1    | 1 | 1 | 1 | GD05332160 | 3.3kΩ           |
| RK54           | 1    | 1 | 1 | 1 | GD05471160 | 470Ω            |
| RK55           | 1    | 1 | 1 | 1 | GD05471160 | 470Ω            |
| RK56           | 1    | 1 | 1 | 1 | GD05471160 | 470Ω            |
| RK57           | 1    | 1 | 1 | 1 | GD05680160 | 68Ω             |
| RK58           | 1    | 1 | 1 | 1 | GD05680160 | 68Ω             |
| RK59           | 1    | 1 | 1 | 1 | GD05680160 | 68Ω             |
| RN01           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ             |
| RN02           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ             |
| RN03           | 1    | 1 | 1 | 1 | GD05103140 | 10kΩ ¼W         |
| RN04           | 1    | 1 | 1 | 1 | GD05103140 | 10kΩ ¼W         |
| RN05           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ            |
| RN06           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ            |
| RN07           | 1    | 1 | 1 | 1 | GD05333160 | 33kΩ            |
| RN08           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ            |
| RN09           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ             |
| RN20           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ            |
| RN21           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ            |
| RN22           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ            |
| RN23           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ            |
| RN24           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ            |
| ARN25          | 1    | 1 | 1 | 1 | NH05150120 | 15Ω ½W, Fusible |
| RN26           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ             |
| RN27           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ             |
| RN28           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ            |
| RN29           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ            |
| RN30           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ             |
| RN31           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ            |
| RN32           | 1    | 1 | 1 | 1 | GD05222160 | 2.2kΩ           |
| RN33           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ            |
| RN34           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ             |
| RN35           | 1    | 1 | 1 | 1 | GD05220140 | 22Ω ¼W          |
| RN36           | 1    | 1 | 1 | 1 | GD05221140 | 220Ω ¼W         |
| RN37           | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ            |
| RS01           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ             |
| RS02           | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ             |
| RS03           | 1    | 1 | 1 | 1 | GD05104160 | 100kΩ           |
| RS04           | 1    | 1 | 1 | 1 | GD05104160 | 100kΩ           |
| RS05           | 1    | 1 | 1 | 1 | GD05333160 | 33kΩ            |
| RS06           | 1    | 1 | 1 | 1 | GD05333160 | 33kΩ            |
| RS07           | 1    | 1 | 1 | 1 | GD05151160 | 150Ω            |
| RS08           | 1    | 1 | 1 | 1 | GD05151160 | 150Ω            |
| RS09           | 1    | 1 | 1 | 1 | GD05471160 | 470Ω            |
| RS10           | 1    | 1 | 1 | 1 | GD05471160 | 470Ω            |
| RS11           | 1    | 1 | 1 | 1 | GD05471160 | 470Ω            |
| RS12           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ            |
| RS13           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ            |
| RS14           | 1    | 1 | 1 | 1 | GD05103160 | 10kΩ            |



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| REF.<br>DESIG.             | Q'TY |   |   |   | PART NO.   | DESCRIPTION               |
|----------------------------|------|---|---|---|------------|---------------------------|
|                            | U    | N | A | F |            |                           |
| RV01                       | 1    | 1 | 1 | 1 | GD05474160 | 470kΩ                     |
| RV02                       | 1    | 1 | 1 | 1 | GD05474160 | 470kΩ                     |
| RV03                       | 1    | 1 | 1 | 1 | GD05474160 | 470kΩ                     |
| RV04                       | 1    | 1 | 1 | 1 | GD05474160 | 470kΩ                     |
| RV05                       | 1    | 1 | 1 | 1 | GD05474160 | 470kΩ                     |
| RV06                       | 1    | 1 | 1 | 1 | GD05474160 | 470kΩ                     |
| RV09                       | 1    | 1 | 1 | 1 | GD05474160 | 470kΩ                     |
| RV10                       | 1    | 1 | 1 | 1 | GD05474160 | 470kΩ                     |
| RV30                       | 1    | 1 | 1 | 1 | GD05151140 | 150Ω ¼W                   |
| RV31                       | 1    | 1 | 1 | 1 | GD05221140 | 220Ω ¼W                   |
| RV32                       | 1    | 1 | 1 | 1 | GD05151140 | 150Ω ¼W                   |
| RV33                       | 1    | 1 | 1 | 1 | GD05221140 | 220Ω ¼W                   |
| RV35                       | 1    | 1 | 1 | 1 | GD05101140 | 100Ω ¼W                   |
| RV36                       | 1    | 1 | 1 | 1 | GD05101160 | 100Ω ¼W                   |
| RY20                       | 1    | 1 | 1 | 1 | GD05102140 | 1kΩ ¼W                    |
| RY21                       | 1    | 1 | 1 | 1 | GD05102140 | 1kΩ ¼W                    |
| R901                       | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ                      |
| R902                       | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ                      |
| R903                       | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ                       |
| R904                       | 1    | 1 | 1 | 1 | GD05680160 | 68Ω                       |
| <b>PK01-SEMICONDUCTORS</b> |      |   |   |   |            |                           |
| DE01                       | 1    | 1 | 1 | 1 | HD20015210 | Diode 1SS133              |
| DN01                       | 5    | 5 | 5 | 5 | HD20015210 | Diode 1SS133              |
| DN05                       |      |   |   |   |            |                           |
| DN20                       |      |   |   |   |            |                           |
| DN24                       |      |   |   |   | HD20015210 | Diode 1SS133              |
| DS01                       | 1    | 1 | 1 | 1 | HD30008020 | Zener MA1100              |
| DS02                       | 1    | 1 | 1 | 1 | HD20015210 | Diode 1SS133              |
| DS03                       | 1    | 1 | 1 | 1 | HD20015210 | Diode 1SS133              |
| DS04                       | 1    | 1 | 1 | 1 | HD20015210 | Diode 1SS133              |
| Δ D801                     | 4    | 4 | 4 | 4 | HD20022030 | Diode DSF10C              |
| D804                       |      |   |   |   |            |                           |
| D805                       |      |   |   |   | HD20015210 | Diode 1SS133              |
| QD01                       | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF) |
| QD02                       | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF) |
| QE01                       | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF) |
| QE02                       | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF) |
| QE03                       | 1    | 1 | 1 | 1 | HT111752D0 | Transistor 2SA1175(EF,FF) |
| QE04                       | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF) |
| QG01                       | 6    | 6 | 6 | 6 | HT327852D0 | Transistor 2SC2785(EF,FF) |
| QG06                       |      |   |   |   |            |                           |
| QG07                       |      |   |   |   | HC406600B0 | IC LC4066B                |
| QG09                       |      |   |   |   | HT327852D0 | Transistor 2SC2785(EF,FF) |
| QG10                       | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF) |
| QK01                       | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF) |
| QK02                       | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF) |
| QK30                       | 6    | 6 | 6 | 6 | HT327852D0 | Transistor 2SC2785(EF,FF) |
| QK35                       |      |   |   |   |            |                           |
| QK36                       |      |   |   |   | HT305362C0 | Transistor 2SC536NP(F,G)  |
| QK37                       |      |   |   |   | HT305362C0 | Transistor 2SC536NP(F,G)  |
| QK38                       | 1    | 1 | 1 | 1 | HT305362C0 | Transistor 2SC536NP(F,G)  |

| REF.<br>DESIG.            | Q'TY |   |   |   | PART NO.   | DESCRIPTION                 |
|---------------------------|------|---|---|---|------------|-----------------------------|
|                           | U    | N | A | F |            |                             |
| QN01                      | 1    | 1 | 1 | 1 | HT111752D0 | Transistor 2SA1175(EF,FF)   |
| QN20                      | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF)   |
| QN21                      | 1    | 1 | 1 | 1 | HT111752D0 | Transistor 2SA1175(EF,FF)   |
| QN22                      | 1    | 1 | 1 | 1 | HT111752D0 | Transistor 2SA1175(EF,FF)   |
| QN23                      | 1    | 1 | 1 | 1 | HT413022B0 | Transistor 2SD1302(S,T)     |
| QN24                      | 1    | 1 | 1 | 1 | HT413022B0 | Transistor 2SD1302(S,T)     |
| QN25                      | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF)   |
| QN26                      | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF)   |
| QS01                      | 1    | 1 | 1 | 1 | HT111752D0 | Transistor 2SA1175(EF,FF)   |
| QS02                      | 1    | 1 | 1 | 1 | HT111752D0 | Transistor 2SA1175(EF,FF)   |
| Δ Q801                    | 1    | 1 | 1 | 1 | HC10043060 | IC μPC7812H                 |
| Q901                      | 1    | 1 | 1 | 1 | HC10017360 | IC LM1894N                  |
| <b>PK01-MISCELLANEOUS</b> |      |   |   |   |            |                             |
| JS01                      | 1    | 1 | 1 | 1 | YT02030010 | Terminal, VD/AUX; (3P)      |
| JS01                      |      |   |   |   | YT02020450 | Terminal, VD/AUX; (2P)      |
| JS02                      | 1    | 1 | 1 | 1 | YT02030010 | Terminal, TV/DBS; (2P)      |
| JS02                      |      |   |   |   | YT02020450 | Terminal, TV/DBS; (2P)      |
| JS03                      | 1    | 1 | 1 | 1 | YT02030010 | Terminal, VCR-1 IN; (3P)    |
| JS03                      |      |   |   |   | YT02020450 | Terminal, VCR-1 IN; (2P)    |
| JS04                      | 1    | 1 | 1 | 1 | YT02030010 | Terminal, VCR-1 OUT; (3P)   |
| JS04                      |      |   |   |   | YT02020450 | Terminal, VCR-1 OUT; (2P)   |
| JS05                      | 1    | 1 | 1 | 1 | YT02020450 | Terminal, Audio IN; (2P)    |
| JS06                      |      |   |   |   | YT02030010 | Terminal, Monitor OUT; (3P) |
| JS06                      | 1    | 1 | 1 | 1 | YT02020450 | Terminal, Monitor OUT; (2P) |
| JS07                      |      |   |   |   | YJ10002130 | Jack, VD/AUX IN BNC         |
| JS08                      | 1    | 1 | 1 | 1 | YJ10002130 | Jack, VD/DBS IN BNC         |
| JS09                      |      |   |   |   | YJ10002130 | Jack, VCR-1 IN BNC          |
| JS10                      | 1    | 1 | 1 | 1 | YJ10002130 | Jack, VCR-1 OUT BNC         |
| JS11                      |      |   |   |   | YJ10002130 | Jack, Monitor OUT BNC       |
| JS12                      | 1    | 1 | 1 | 1 | YP10001980 | Plug, BNC                   |
| JS13                      |      |   |   |   | YP10001980 | Plug, BNC                   |
| JS14                      | 1    | 1 | 1 | 1 | YP10001980 | Plug, BNC                   |
| JS15                      |      |   |   |   | YP10001980 | Plug, BNC                   |
| JS16                      | 1    | 1 | 1 | 1 | YP10001980 | Plug, BNC                   |
| JS17                      |      |   |   |   | YB00040100 | Connective Cord, BNC        |
| JS18                      | 1    | 1 | 1 | 1 | YB00040100 | Connective Cord, BNC        |
| JS19                      |      |   |   |   | YB00040100 | Connective Cord, BNC        |
| JS20                      | 1    | 1 | 1 | 1 | YB00040100 | Connective Cord, BNC        |
| JS21                      |      |   |   |   | YB00040100 | Connective Cord, BNC        |
| JS22                      | 1    | 1 | 1 | 1 | YJ01001780 | Jack, Mic (Gold)            |
| JS22                      |      |   |   |   | YJ01002110 | Jack, Mic (Black)           |
| LE01                      | 1    | 1 | 1 | 1 | LC15630030 | Choke Coil, 56μH            |
| SG01                      | 1    | 1 | 1 | 1 | SP06040070 | Push Switch, Function       |
| SG02                      | 1    | 1 | 1 | 1 | SS02020880 | Slide Switch, VCR-1 MONO/ST |
| SG04                      | 1    | 1 | 1 | 1 | SP06020190 | Push Switch, VCR-2 MONO/ST  |
| SG05                      | 1    | 1 | 1 | 1 | SP04020460 | Push Switch, Audio/Video    |
| SG06                      | 1    | 1 | 1 | 1 | SP04010490 | Push Switch, Power          |
| SG07                      | 1    | 1 | 1 | 1 | SP06020200 | Push Switch, Copy           |
| WP01                      | 1    | 1 | 1 | 1 | YU03380260 | Jumper Lead, 3P             |
| WP02                      | 1    | 1 | 1 | 1 | YU03260260 | Jumper Lead, 3P             |
| WP03                      | 1    | 1 | 1 | 1 | YU03260260 | Jumper Lead, 3P             |
| WP04                      | 1    | 1 | 1 | 1 | YU03200260 | Jumper Lead, 3P             |
| WP05                      | 1    | 1 | 1 | 1 | YU03260260 | Jumper Lead, 3P             |
| WP06                      | 1    | 1 | 1 | 1 | YU07200260 | Jumper Lead, 7P             |
| WP07                      | 1    | 1 | 1 | 1 | YU02360260 | Jumper Lead, 2P             |
| WP08                      | 1    | 1 | 1 | 1 | YU03160260 | Jumper Lead, 3P             |
| WP09                      | 1    | 1 | 1 | 1 | YU07160260 | Jumper Lead, 7P             |
| WP10                      | 1    | 1 | 1 | 1 | YU05160260 | Jumper Lead, 5P             |

- (U): for U.S.A.
- (N): for Europe
- (A): for Australia
- (F): for Japan

| REF.<br>DESIG.   | Q'TY |   |   |   | PART NO.   | DESCRIPTION                       |
|--|------|---|---|---|------------|-----------------------------------|
|  | U    | N | A | F |            |                                   |
| WP11   | 1    | 1 | 1 | 1 | YU07260260 | Jumper Lead, 7P                   |
| WP12   | 1    | 1 | 1 | 1 | YU03260260 | Jumpe, Lead, 3P                   |
| WP13   | 1    | 1 | 1 | 1 | YU03120260 | Jumper Lead, 3P                   |
| WP14   | 1    | 1 | 1 | 1 | YU04120260 | Jumper Lead, 4P                   |
| WP15   | 1    | 1 | 1 | 1 | YU05200260 | Jumper Lead, 5P                   |
| WP16   | 1    | 1 | 1 | 1 | YU04180260 | Jumper Lead, 4P                   |
| WP17   | 1    | 1 | 1 | 1 | YU02260260 | Jumper Lead, 2P                   |
| WP18   | 1    | 1 | 1 | 1 | YU03100260 | Jumper Lead, 3P                   |
| WP19   | 1    | 1 | 1 | 1 | YU02160260 | Jumper Lead, 2P                   |
| WP20   | 1    | 1 | 1 | 1 | YU03180260 | Jumper Lead, 3P                   |
| WP21   | 1    | 1 | 1 | 1 | YU03280260 | Jumper Lead, 3P                   |
| WP22   | 1    | 1 | 1 | 1 | YU02380260 | Jumper Lead, 2P                   |
| WP23   | 1    | 1 | 1 | 1 | YU03120260 | Jumper Lead, 3P                   |
| WP24   | 1    | 1 | 1 | 1 | YU03120260 | Jumper Lead, 3P                   |
| WP25   | 1    | 1 | 1 | 1 | YU02140260 | Jumper Lead, 2P                   |
| WP26   | 1    | 1 | 1 | 1 | YU02080260 | Jumper Lead, 2P                   |
| <b>PV01-VCR-2 IN/OUT<br/>CIRCUIT BOARD</b>                     |      |   |   |   |            |                                   |
| PV01   | 1    | 1 | 1 | 1 | YK280H1520 | P. W. Board, VCR-2 IN/OUT         |
|  | 1    | 1 | 1 |   | ZZ280H1520 | P. W. Board Assembly              |
| RV07   | 1    | 1 | 1 | 1 | GD05474160 | Resistor 470kΩ ±5% 1/6W           |
| RV08   | 1    | 1 | 1 | 1 | GD05474160 | Resistor 470kΩ ±5% 1/6W           |
| RE36   | 1    | 1 | 1 | 1 | GD05101140 | Resistor 100Ω ±5% ¼W              |
| JW01   | 1    | 1 | 1 | 1 | YT02060220 | Terminal, VCR-2 IN/OUT<br>(6P)    |
| O16B   | 1    | 1 | 1 | 1 | 280H270500 | Button (K) with MONO/ST<br>switch |
| <b>PV02-VCR-2 SUB<br/>CIRCUIT BOARD</b>                        |      |   |   |   |            |                                   |
| PV02   | 1    | 1 | 1 | 1 | YK280H1530 | P. W. Board, VCR-2 Sub            |
|  | 1    | 1 | 1 |   | ZZ280H1530 | P. W. Board Assembly              |
| <b>PV02-CAPACITOR</b>  |      |   |   |   |            |                                   |
| CG21   | 1    | 1 | 1 | 1 | EA10601610 | Elect 10μF 16V                    |
| CG22   | 1    | 1 | 1 | 1 | EA10601610 | Elect 10μF 16V                    |
| CG23   | 1    | 1 | 1 | 1 | EA10601610 | Elect 10μF 16V                    |
| CG24   | 1    | 1 | 1 | 1 | EA10601610 | Elect 10μF 16V                    |
| <b>PV02-RESISTORS<br/>(All Resistors are<br/>±5% and 1/6W)</b> |      |   |   |   |            |                                   |
| RG59   | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ                               |
| RG60   | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ                               |
| RG61   | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ                              |
| RG62   | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ                              |
| RG63   | 1    | 1 | 1 | 1 | GD05223160 | 22kΩ                              |
| RG64   | 1    | 1 | 1 | 1 | GD05223160 | 22kΩ                              |
| RG65   | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ                              |
| RG66   | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ                              |
| RG67   | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ                               |
| RG68   | 1    | 1 | 1 | 1 | GD05102160 | 1kΩ                               |
| RG69   | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ                              |
| RG70   | 1    | 1 | 1 | 1 | GD05473160 | 47kΩ                              |
| RG71   | 1    | 1 | 1 | 1 | GD05221160 | 220Ω                              |
| RG72   | 1    | 1 | 1 | 1 | GD05221160 | 220Ω                              |
| <b>PV02-SEMICONDUCTORS</b>                                     |      |   |   |   |            |                                   |
| QG11   | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF)         |
| QG12   | 1    | 1 | 1 | 1 | HT327852D0 | Transistor 2SC2785(EF,FF)         |

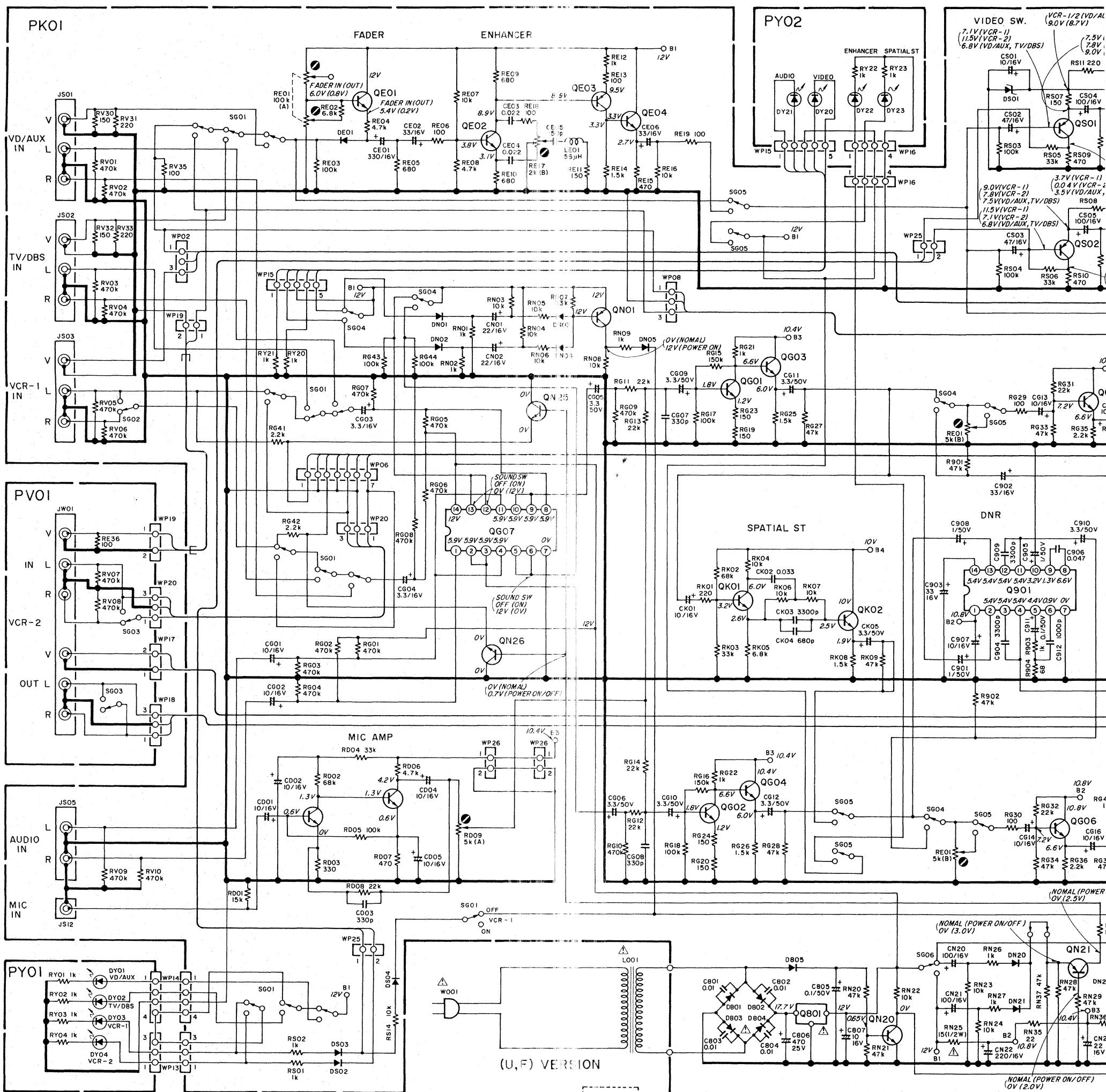
| REF.<br>DESIG. | Q'TY |   |   |   | PART NO.   | DESCRIPTION  |
|----------------|------|---|---|---|------------|--|
|                | U    | N | A | F |            |  |
| PY01           | 1    | 1 | 1 | 1 | YK280H1540 | <b>PY01-FUNCTION IN-<br/>DICATOR CIRCUIT BOARD</b><br>P. W. Board, Function<br>Indicator<br>P. W. Board Assembly |
|                | 1    | 1 | 1 |   | ZZ280H1540 |  |
| RY01           | 1    | 1 | 1 | 1 | GD05102160 | Resistor 1kΩ ±5% 1/6W  |
| RY02           | 1    | 1 | 1 | 1 | GD05102160 | Resistor 1kΩ ±5% 1/6W  |
| RY03           | 1    | 1 | 1 | 1 | GD05102160 | Resistor 1kΩ ±5% 1/6W  |
| RY04           | 1    | 1 | 1 | 1 | GD05102160 | Resistor 1kΩ ±5% 1/6W  |
| DY01           | 1    | 1 | 1 | 1 | HI10007080 | L.E.D. SEL-1120R   |
| DY02           | 1    | 1 | 1 | 1 | HI10007080 | L.E.D. SEL-1120R   |
| DY03           | 1    | 1 | 1 | 1 | HI10007080 | L.E.D. SEL-1120R   |
| DY04           | 1    | 1 | 1 | 1 | HI10007080 | L.E.D. SEL-1120R   |
| PY02           | 1    | 1 | 1 | 1 | YK280H1550 | <b>PY02-SPATIAL<br/>ENPHANCER CIRCUIT<br/>BOARD</b><br>P. W. Board, Spatial<br>Enphancer<br>P. W. Board Assembly |
|                | 1    | 1 | 1 |   | ZZ280H1550 |  |
| RY22           | 1    | 1 | 1 | 1 | GD05102160 | Resistor 1kΩ ±5% 1/6W  |
| RY23           | 1    | 1 | 1 | 1 | GD05102160 | Resistor 1kΩ ±5% 1/6W  |
| DY20           | 1    | 1 | 1 | 1 | HI10008080 | L.E.D. SEL-1320G   |
| DY21           | 1    | 1 | 1 | 1 | HI10007080 | L.E.D. SEL-1120R   |
| DY22           | 1    | 1 | 1 | 1 | HI10007080 | L.E.D. SEL-1120R   |
| DY23           | 1    | 1 | 1 | 1 | HI10007080 | L.E.D. SEL-1120R   |

|          |                     |
|----------|---------------------|
| (W01-99) | Assembly and wiring |
| (T01-99) | Adjustment          |
| (X01-00) | Correction          |

#### NOTE ON SAFETY:

Symbol  $\Delta$  Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol  $\Delta$ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

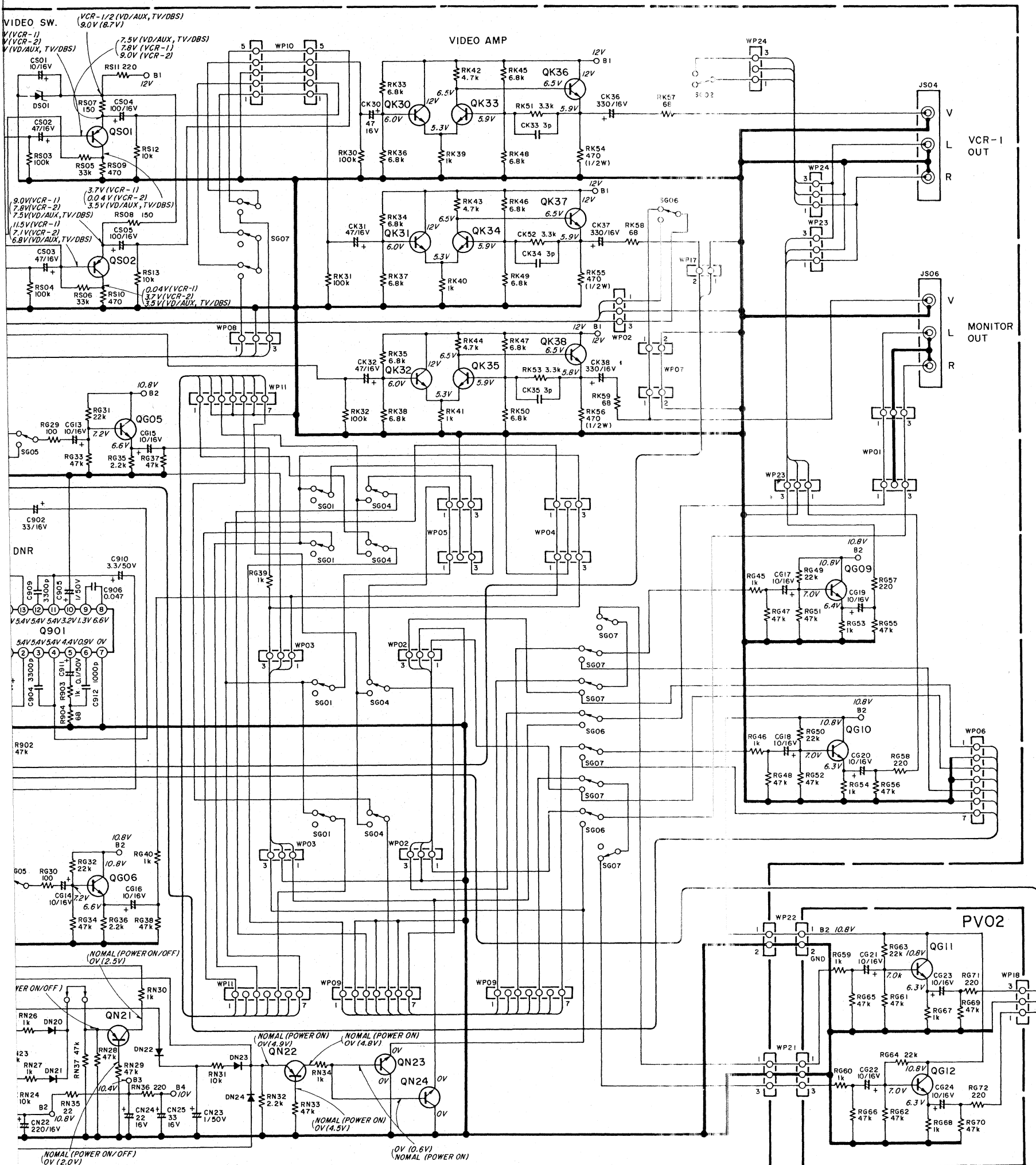
# 10. SCHEMATIC DIAGRAM



## NOTE ON SAFETY:

Symbol  $\Delta$  Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol  $\Delta$ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

# Model AV251



Q901  
HC10017360  
LM1894N

QN01, QN21, QN22  
QS01, QS02, QE03  
HT111752D0  
2SA1175 (EF or FF)

QD01, QD02  
QK01, QK02  
QK30 ~ QK35  
QG01 ~ QG06  
QG09 ~ QG12  
QE01, QE02, QE04  
QN20, QN25, QN26  
HT327852D0  
2SC2785 (EF or FF)

QG07  
HC406600B0  
LC4066B

QN23, QN24  
HT413022B0  
2SD1302 (S or T)

Q801  
HC10043060  
μPC7812H

QK36~QK38  
HT305362CO  
2SC536NP (F or G)

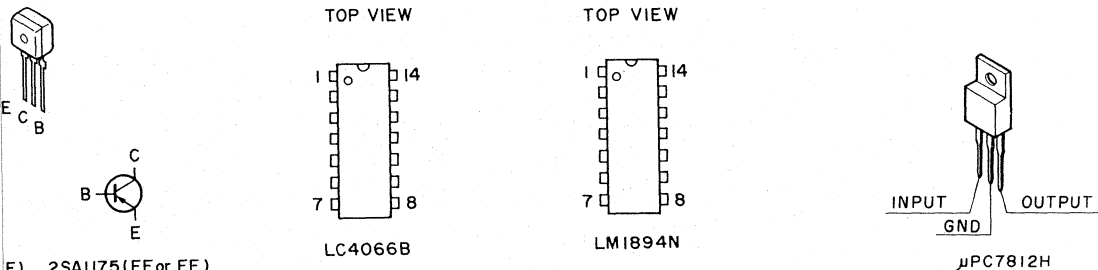
DY01~DY04  
DY21~DY23  
HI10007080  
SEL-1120R

DY20  
HI10008080  
SEL-1320G

DSOI  
HD30008020  
MA1100

DN01~DN05  
DN20~DN24  
DS02, DS03, DS04  
D805, DE01  
HD20015210  
ISS133

D801~D804  
HD20022030  
DSFIOC



F) 2SA1175(EF or FF)

**Components and wiring are subject to change for modification without notice.**